

CLAIMS:

1. An image forming apparatus comprising:

an image forming section which includes a latent image carrier which is constructed to carry an electrostatic latent image and a charger unit which charges the latent image carrier to a predetermined surface potential, wherein an electrostatic latent image, which is formed on a surface of the latent image carrier, is developed with toner to form a toner image; and

a controller unit which performs an adjusting operation to adjust operating conditions of the image forming section based on a density detection result of a toner image which is formed by the image forming section as a patch image,

wherein the controller unit determines execution timing of the adjusting operation based on timing information related to variation over time in charge property of the latent image carrier.

2. The image forming apparatus of claim 1, wherein the controller unit performs the adjusting operation when the timing information reaches a predetermined threshold value.

3. The image forming apparatus of claim 1, wherein the controller unit

uses information on remaining service life of the latent image carrier as the timing information.

4. The image forming apparatus of claim 3, wherein the controller unit uses an integrated value of the operation amount of the latent image carrier as the timing information.

5. The image forming apparatus of claim 1, wherein the controller unit uses information on remaining service life of the charger unit as the timing information.

6. The image forming apparatus of claim 1, wherein the controller unit executes the adjusting operation at necessary timing according to a status of individual parts of the apparatus, and

process of the adjusting operation triggered by the timing information is different from that of the adjusting operation which is performed at other timings.

7. The image forming apparatus of claim 6, wherein the controller unit performs more simplified operation process for the adjusting operation which is triggered by the timing information than the operation process that is performed

at other timings.

8. The image forming apparatus of claim 1,
wherein the charger unit includes a discharging electrode which is closely disposed to the surface of the latent image carrier, and
wherein the controller unit controls charge property of the latent image carrier by adjusting the amount of current which is supplied to the discharging electrode based on the timing information, as well as executing the adjusting operation when the amount of current is changed.

9. The image forming apparatus of claim 8, wherein the controller unit is adapted to execute the adjusting operation at necessary timings according to a status of individual parts of the apparatus, determines whether the amount of current should be changed or not based on the timing information in the event when the adjusting operation is executed, and executes the adjusting operation after changing the amount of charging current based on the result of judgement if necessary.

10. The image forming apparatus of claim 1,
wherein the charger unit includes: an electrode member supplied with a predetermined charging bias; and a high-resistance layer that is disposed to

cover a surface of the electrode member and is made out of materials with higher resistivity than that of the electrode member, and charges the latent image carrier with the high-resistance layer abutting the latent image carrier, and

wherein the controller unit controls charge property of the latent image carrier by adjusting the charging bias based on the timing information, as well as executing the adjusting operation when the charging bias is changed.

11. The image forming apparatus of claim 10, wherein the charging bias is DC voltage.

12. The image forming apparatus of claim 10, wherein the controller unit is adapted to execute the adjusting operation at necessary timings according to a status of individual parts of the apparatus, determines whether the charging bias should be changed or not based on the timing information in the event when the adjusting operation is executed, and executes the adjusting operation after changing the charging bias based on the result of judgement if necessary.

13. An image forming method for use in an image forming apparatus which comprises: a latent image carrier which is constructed to be carry an electrostatic latent image; and a charger unit which charges the latent image carrier to a predetermined surface potential, and which develops an electrostatic

image, which is formed on a surface of the latent image carrier, with toner so as to form a toner image,

wherein the toner image is formed as a patch image at timing that is determined based on timing information associated with variation in charge property of the latent image carrier that is charged by the charger unit, which has a characteristic of adjusting operating conditions based on a detected density of the toner image.